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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,515	12/03/2003	Max Hartwell Beasley III	85379.022037	3774

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EXAMINER

KITOV, ZEEV

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/725,515	Applicant(s) BEASLEY ET AL.	
	Examiner Zeev Kitov	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2004.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 14 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1 - 14 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 09 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07/21/04, 09/14/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: it declares two sole inventors.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a voltage sensing relay adapted to measure a first voltage in the first power conductor and a second voltage in the second conductor and to activate the voltage sensing relay contactor when the first and the second voltages exceed a predetermined turn-on value" of Claim 1 must be shown or the feature(s) canceled from the claim(s). The voltage-sensing relay identified in Specification as element 60 is not shown. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

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and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1 – 8 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A reason for that is that the claim includes a following limitation: "adapted to measure a first voltage in the first power conductor and a second voltage in the second power conductor". It further claims: "to activate the voltage sensing relay contactor when the first and second voltages exceed a predetermined turn-on value" and "deactivate the voltage sensor relay contactor when one or both of the first and second voltages falls below a predetermined turn-off value" (emphasis added).

As well known in the art, the voltage is nothing but a potential difference and therefore is to be measured between two nodes of the circuit. The McDonald 1 circuit recited by Applicant to illustrate the voltage-sensing relay measures a potential difference (sum) between two power conductors, rather than the potential in the first and the second conductors. For purpose of examination, the limitations were interpreted as follows: "adapted to measure a potential sum (difference) between the first and the second power conductors", "to activate the voltage sensing relay contactor when the potential sum (difference) of first and second voltages exceed a predetermined turn-on value" and "deactivate the voltage sensor relay contactor when the potential sum (difference) of the first and second voltages falls below a predetermined turn-off value".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald 1 et al. (US 5,894,392) in view of Watkins et al. (US 5,841,617).

McDonald 1 discloses following elements of the claim: a portable electric power supply with a power line having first and second power conductors and a neutral conductor elements L1, L2, N and G in Fig. 2); one or more outlets (element 42 in Fig. 2), a main power contactor, which being activated, connects the power outlets with to the neutral

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conductor and at least one of the first and second power conductors (inputs L1', L2' and N' of the circuit breaker in Fig. 2). It further discloses a voltage sensing relay (elements K1 and K2 in Fig. 2) adapted to measure a potential sum (difference) between the first and the second power conductors and to activate the voltage sensing relay contactor (element 18 in Fig. 2) when the potential difference between the first and the second power conductors exceed a predetermined turn-on voltage (col. 3, line 64 – col. 4, line 37). It further implicitly discloses deactivation of the voltage sensor relay contactor when the potential sum (difference) of the first and second voltages falls below a predetermined turn-off value, since when the voltage across relay (elements K1 and K2 in Fig. 2) drops below the relay drop-off value its contacts are disconnected. The recited voltage sensing circuit (element 14 in Fig. 2) provides a closed circuit when activated and an open circuit when not activated (by moving contacts S2, S3 and S4 in Fig. 2). However, it does not disclose and a manually operated safety switch and a latching contactor. Watkins et al. disclose the manually activated switch (element 439 in Fig. 4) and the latching contactor (element 404B in Fig. 4); the switch being depressed closes a circuit activating the relay 404, which closes its contact 404B, thus providing the latching (col. 8, lines 50 – 52). Both references have the same problem solving area, namely providing the electrical safety devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the McDonald 1 solution by adding the momentary push button and the latching contact according to Watkins et al., because in modern technology, the start switches are almost exclusively built as momentary push buttons; to provide permanent connection

these switches require an external latching mechanism. A reason for momentary push buttons being widely used is that unlike mechanically bistable switches (toggle or rockery), they can be manufactured in form of microswitches or membrane switches, which saves a space and substantially reduces a manufacturing cost.

Regarding Claim 2, McDonald 1 discloses the power input connectable to a 50A 250VAC power supply (col. 4, lines 38 – 41).

Regarding Claim 3, McDonald 1 discloses at least one circuit breaker associated with the one outlet (element 20 in Fig. 2).

Regarding Claim 4, McDonald 1 discloses the outlet with 120V 20A rating having associated GFCI breaker (element 22 in Fig. 2).

Regarding Claim 5, McDonald 1 discloses the outlet with 240V 30A rating having associated GFCI breaker (element 20 in Fig. 2).

Regarding Claim 6, McDonald 1 discloses the apparatus with one or more 30A 120/240V outlets (col. 3, lines 41 – 43).

Regarding Claim 7, McDonald 1 discloses the voltage-sensing relay (element 14 in Fig. 2) adapted to activate the contactor when the sum (difference) of the first and the second voltages exceeds a predetermined turn-on value (col. 3, line 64 – col. 4, line 37). It further implicitly discloses deactivation of the voltage sensor relay contactor when the potential sum (difference) of the first and second voltages falls below a predetermined turn-off value, since when the voltage across relay (elements K1 and K2 in Fig. 2) drops below the relay drop-off value its contacts are disconnected.

Regarding Claim 8, McDonald 1 discloses the system, wherein the power input has a rated voltage value and the turn-on value is about 96% of the rated voltage (calculated from data in col. 4, lines 13 – 16).

Regarding Claim 13, Watkins et al. disclose the electrical safety device having a light adapted to be illuminated when the emergency conditions fault occurs (element 515 in Fig. 5A, col. 9, lines 39 – 42). By a way of analogy, in the McDonald 1 system modified according to Watkins et al., the light can be activated in the emergency conditions, i.e. when the main power contactor is activated. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the McDonald 1 solution by adding the light illuminated when the main power contactor is activated according to Watkins et al., because it would give the fault indication to the maintenance personal to take care of the fault.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald 1 in view of Watkins et al., Horowitz et al. and Houser (US 4,040,117).

As was stated above, McDonald 1, Watkins et al. and Horowitz et al. disclose all the elements of Claim 1. However, regarding Claim 9, they do not disclose the turn-on threshold being adjustable. McDonald 1 discloses the turn-on voltage threshold as being defined by series connected zener diodes (elements D1 and D2 in Fig. 2, col. 2, lines 54 – 60). Houser discloses adjusting the relay turn-on threshold with a help of potentiometer (element 22 in Fig. 2, col. 2, lines 59 - 60). As well known in the art, the zener diodes are being manufactured with variety of different breakdown voltages. So

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selecting the zener diode with predetermined breakdown voltage or changing amount of diodes in the string to set the predetermined voltage would change the threshold of the relay activation as well. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the McDonald 1 solution by changing the turn-on voltage by using a potentiometer according to Houser or by changing either the type of the zener diode or an amount of diodes in the string, because such adjustment of the turn-on voltage threshold would allow to adjust the system to work with different AC voltage standard.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald 1 in view of Watkins et al., Horowitz et al. and Internet text, Electromechanical Relays. As was stated above, McDonald 1, Watkins et al. and Horowitz et al. disclose all the elements of Claims 1 and 7. However, regarding Claim 10, they do not disclose the turn-off voltage value as being not equal to the turn-on value. In McDonald 1 system, the turn-on and turn-off voltage values are determined in part (at least their difference) by pull-in and drop-out voltages (currents) of the relays (elements K1 and K2 in Fig. 2). According to the Internet text, the pull-in and the drop-out voltages (currents) for the relays are different; particularly the drop-out voltage is lower than the pull-in voltage (page 2, 2nd and 3rd paragraphs). Both references have the same problem solving area, namely dealing with the threshold characteristics of the relay element. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the McDonald 1 by using the

relay with hysteresis, i.e. having the drop-out voltage lower than the pull-in voltage value, because it would ensure proper functioning of the system in conditions of fluctuation of the supplied voltage.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald 1 in view of Watkins et al., Horowitz et al., Internet text and Omron G6D Power Relay Data Sheet. As was stated above, McDonald 1, Watkins et al., Horowitz et al. and Internet text disclose all the elements of Claims 1, 7 and 10. However, regarding Claim 11, they do not disclose the turn-off value being up to about 20% lower than the turn-on value. The Internet text discloses the inherent hysteresis of electromagnetic relays, i.e. difference between values of their pick-up and drop-out voltages. As to particular value of this difference, the Omron Power Relay Data Sheet discloses the relay having the turn-off (drop-out) and the turn-on (pick-up) values being 10 and 70% of a rated voltage accordingly. This difference between values is substantially bigger than 20%. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the McDonald solution by choosing the relay having appropriate value of hysteresis, because as well known in the art, presence of the hysteresis makes the system immune against fluctuations of voltages.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald 1 in view of Watkins et al., Horowitz et al., Internet text, Electromechanical

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Relays and Houser. As was stated above, McDonald 1, Watkins et al., Horowitz et al. and Internet text disclose all the elements of Claims 1, 7 and 10. However, regarding Claim 12, they do not disclose the turn-on threshold being adjustable. McDonald 1 discloses the turn-on voltage threshold as being defined by series connected zener diodes (elements D1 and D2 in Fig. 2, col. 2, lines 54 – 60). Houser discloses adjusting the relay turn-on threshold with a help of potentiometer (element 22 in Fig. 2, col. 2, lines 59 - 60). As well known in the art, the zener diodes are being manufactured with variety of different breakdown voltages. So selecting the zener diode with predetermined breakdown voltage or changing amount of diodes in the string to set the predetermined voltage would change the threshold of the relay activation as well. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the McDonald 1 solution by changing the turn-on voltage by using a potentiometer according to Houser or by changing either the type of the zener diode or an amount of diodes in the string, because such adjustment of the turn-on voltage threshold would allow to adjust the system to work with different AC voltage standard.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald 1 in view of Watkins et al. and McDonald 2 (US 5,418,678). As was stated above, McDonald 1 and Watkins et al. disclose all the elements of Claim 1. However, regarding Claim 14, they do not disclose one or more fuses protecting the equipment. McDonald 2 discloses the GFCI device connectable to a fuse box (col. 13, lines 33 –


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39). By a way of analogy, when the GFCI device is employed at a construction site, the fuses can be incorporated into the device to have the same protection. Both references have the same problem solving area, namely providing the GFCI protection. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the McDonald 1 solution by adding the input fuses to the device used at a construction site, because it would provide an over-current and short-circuit protection to the supervisory circuit of McDonald 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization where this application or proceedings is assigned is (703) 872-9306 for all communications.

Z.K.
10/05/2004



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